Geology

Merit Badge Worksheet

Define Geology

1. Geology is the study of Earth. The composition of earth materials, structures, and processes.

   Discuss how geologists learn about rock formations_____
   _____
   _____

In geology, explain why the study of the present is important to understanding the past.

2. The better geologists understand Earth's history the better they can foresee how events and processes of the past might influence the future.

Pick three resources that can be extracted or mined from Earth for commercial use. Discuss how each product is discovered and processed.

3. Resource 1- Oil
   How was oil discovered? _____
   _____
   How was oil processed? _____
   _____
4. Resource 2- Coal
   How was coal discovered? _____
   _____
   How was coal processed? _____
   _____
5. Resource 3- Diamonds
   How were diamonds discovered? _____
   _____
   How were diamonds processed? _____
   _____

Review a geologic map of this area and discuss the different rock types and estimated ages of rocks represented. Determine whether the rocks are horizontal, folded, or faulted, and explain how you arrived at your conclusion.

Rock Type	Age	Horizontal, Folded, or faulted

6. How you arrived at your conclusion_____
   _____
   _____
   _____

Find out about three career opportunities available in geology. Pick one and find out the education, training, and experience required for the profession.

7. Career 1_____
8. Career 2 _____
9. Career 3 _____
10. Education, training, and Experience_____
    _____
    _____
    _____
11. Discuss why this profession might interest you.

Mineral Resource option

Define rock. Discuss the three classes of rocks including their origin and characteristics.

12. Rocks are made up of different types of minerals (a bit like the ingredients in a cake)
13. Class 1- Igneous
    Origin_____
    _____
    Characteristics_____
    _____
14. Class 2- Sedimentary
    Origin_____
    _____
    Characteristics_____
    _____
    _____
15. Class 3- Metamorphic
    Origin_____
    _____
    Characteristics_____
    _____
    _____

Define mineral. Discuss the origin of minerals and their chemical composition and identification properties, including hardness, specific gravity, color, streak, cleavage, luster, and crystal form.

A mineral is any naturally occurring, three dimensional inorganic (not containing organic substances) substance, with a chemical that can be exact, or can vary within limits.

16. Origin of a mineral_____
    _____
17. Chemical composition_____
    _____
    _____
18. Identification properties_____
    _____
    _____
    _____

Identify 15 different rocks and minerals. List the name of each specimen, tell whether it is a rock or mineral, and give the name of its class (if it is a rock) or list its identifying physical properties (Fi it is a mineral).

	Rock or Mineral	**Class Name**	**Identifying Physical Properties**
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

List three of the most common road building materials used in your area. Explain how each material is produced and how each is used in road building.

19. Asphalt
    How it is produced? _____
    _____
    _____
    How it is used? _____
    _____
    _____

20. Concrete
    How it is produced? _____
    _____
    _____
    How it is used? _____
    _____
    _____

21. Cobblestone
    How it is produced? _____
    _____
    _____
    How it is used? _____
    _____
    _____

Choose two examples of rocks and two examples of minerals. Discuss the mining of these materials and describe how each is used by society.

22. Granite
    Granite is quarried by diamond wire saws, hydraulic drilling equipment and water jets.
    How is Granite used? _____
    _____

23. Gypsum
    Gypsum is exploded from gypsum mines. Second, it comes to the crushing stage. Then, it is heated in the heating process with different temperatures and into different industrial materials. After heating stage it will get grinded into powder with gypsum mills. Gypsum powder will then be processed into many kinds of industrial materials or consumer goods.
    How is Gypsum used? _____
    _____

24. Mica

The mining of mica is the poetry of mining because micas occur as flakes or scales in many igneous and metamorphic rocks. Prospecting of mica is a matter of trial and error. Devoted people go into the field to chisel and hammer from vein to vein to find the perfect pegmatite (a very crystalline intrusive igneous rock) veins. Mica obtained from the mine is called crude mica and it requires dressing to remove the pegmatite dirt as well as defective portions of mica.

How is Mica used? _____

_____

25. Halite

Halite is mined from underground deposits by using large, diesel-powered equipment designed for undercutting, drilling, blasting, loading, and transporting.

How is Halite used? _____

_____